BCA (Bachelor of Computer Application)
BCA (Semester-VI)

Course Code	**US06CBCA51**	Title of the Course	**Web Programming using PHP**
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	1. To introduce students to fundamental concepts related to PHP programming. 2. To impart basic knowledge of working with advanced features of PHP and interaction with forms. 3. To provide basic understanding of database access.

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction to PHP** – History of PHP, Features Merits and Demerits of PHP, General structure of PHP, Displaying Output, Escaping Special Characters, Comments, Variables – (Declaring, Assigning, Destroying), – Datatypes, Setting and Testing Datatypes, Constants, Operators (Arithmetic, Comparison, Logical, Assignment, Concatenation) – Superglobal variables	25
2.	**PHP Basics** – Control structures – Looping structures – 1-D Array & its manipulation (Storing Data, Assigning, Accessing Array Elements, Displaying) – User-Defined Functions, Function Scope	25
3.	**Advanced PHP and Form Interaction** – Working with Number, Strings functions, Working with Dates and Time – Creating tables using PhpMyAdmin, Interaction with HTML form, Validating HTML Form – Error checking or Exiting – Introduction to Regular Expression, – File handling	25

4.	**Database programming and PHP** – Introduction to MySQL: Features, Merits and Demerits – MySQL data types and constraints – Working with Forms PHP and MySQL Integration – Basic SQL Commands (Insert, Update, Delete, Select) – MySQL functions (mysql_connect, mysql_select_db, mysql_query, – mysql_num_rows, mysql_fetch_array, mysql_fetch_field, mysql_close) –- - Generating reports using PHP and MySQL - Introduction and use of Session - Introduction and use of Cookies	25

Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching and online /ICT-based teaching practices.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to develop	
1.	Understanding of the fundamental concepts related to PHP programming.
2.	Basic knowledge of working with advanced features of PHP and interaction with forms.
3.	Understanding of database access in PHP.

Suggested References:	
Sr. No.	References
1.	PHP – A Beginner's guide, Vikram Vaswani, TMH, 2009.
2.	Web enabled commercial application development using HTML, Javascript, DHTML and PHP by Ivan Bayross, BPB Publication, 2010.
3	Beginning PHP5 By Dave Mercer, Allan Kent, Steven Nowicki, David Mercer, DanSquier, Wankyu Choi, Wrox Publication, 2004.
4	Professional PHP by Castagnetto Jesus, Shroff Publication, 1999.

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Course Code	**US06CBCA52**	Title of the Course	**Python Programming**
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	1. To learn the fundamentals of the Python programming language. 2. To study the concepts of object-oriented programming in Python. 3. To learn exception handling and file handling in Python. 4. To understand how to access files and databases from Python

Course Content		
Unit	Description	Weightage (%)
1.	**Python Basics - I** – Python Overview and History, Features of Python, Difference Between C, JAVA & Python, – Applications of Python, Programming Structure of Python, – Introduction to Python Libraries (NumPy, Pandas, Matplotlib, etc.) – Python Environment Setup, Basic Syntax of Python, Python Data types, Python variables, Casting, Operators, Comments, – User Input, Decision making and Branching,	25
2.	**Python Basics - II** – Looping, Range – List and Tuple – Set and Dictionary – Strings and basic operations – RegEx Module (Regular Expressions), Python JSON	25
3.	**Object Orientated Concepts and Exception Handling** – Concept of Class, Object and Instances, Constructor, class attributes and destructors, Functions, Scope, Iterators – Inheritance, method overloading and overriding in python, Modules, Lamda function, – Debugging, Python Error with its Types, Exception handling in Python, Try-finally, raising exceptions, user-defined exceptions.	25
4.	**File IO Management and Databases** – File Handling (Introduction, Create, Read, Write and Delete File) Database connection using MYSQL, Creating, Searching and Drop Tables, Record Manipulation (Select, Insert, Update, Delete, Searching, Sorting, Join)	25

Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching and online /ICT-based teaching practices.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to develop	
1.	Ability to develop computer programs using the Python programming language.
2.	Knowledge of manipulating different Python data types.
3.	Ability to develop object-oriented programs using Python.
4.	Basic knowledge of exception handling, file handling and database access in Python.

Suggested References:	
Sr. No.	References
1.	John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India
2.	Wesley J. Chun. "Core Python Programming -Second Edition", Prentice Hall
3	Learning Python: By Mark Lutz, David Ascher
4	Exploring Python Book by Timothy Budd
5	Head First Python: A Brain-Friendly Guide by Aaul Barry

6	Introducing Python-Modern Computing in Simple Packages –Bill Lubanovic, O'Reilly Publication
7	Introduction to Computer Science Using Python-Charles Dierbach, Wiley Publication Learning with Python ", Green Tea Press, 2002
8	Beginning Programming with Python for DummiesPaperback–2015 byJohn Paul Mueller

On-line resources to be used if available as reference material
On-line Resources
https://www.w3schools.com/python https://www.tutorialspoint.com/python

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Course Code	**US06CBCA53**	Title of the Course	**Computer Networks**
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	1. To understand the basic concepts of computer networks and data communication. 2. To acquire knowledge of basic concepts related to network protocols and standards. 3. To learn fundamentals of wireless networking.

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction** – Computer networks : definition, advantages-disadvantages – Classification of computer networks – Categories of computer network : local area networks, metropolitan area networks, wide area networks – Meaning of the basic terms : topology, data rate, modulation rate, spectrum, bandwidth, server, host	25
2.	**Data Communication Fundamentals** – Various types of transmission media – Guided transmission media : magnetic media – Twisted pair, coaxial cables, fiber optics – Serial transmission vs. Parallel transmission – Circuit switching, packet switching, message switching – Concept of multiplexing : frequency division multiplexing ,time division multiplexing	25
3.	**Layered Protocols and Satellite Communication** – Protocol significance and hierarchies – Design issues for the layers – The OSI reference model – Examples of protocols for different layers of the OSI model – Introduction communication satellites and categories (LEO, MEO, GEO)	25
4.	**Introduction to Wireless Networks and Networking Devices** – Introduction to wireless networks : Bluetooth – LAN topologies with advantages and disadvantages : bus, star,	25

	ring, tree, mesh – Introduction to carrier sense multiple access (CSMA), carrier sense multiple access with collision detection (CSMA/CD) protocol for LAN – Functions of various networking components : modems, amplifiers, repeaters, hubs, switches, routers, gateway, bridges	

Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching and online /ICT-based teaching practices.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to develop	
1.	Ability to describe the significance and functioning of computer networks.
2.	Understanding of the fundamental concepts related to data communication.
3.	Knowledge of various network protocols and standards.
4.	Knowledge of basic concepts related to wireless networking

Suggested References:	
Sr. No.	References
1.	Behrouz Forouzan, introduction to data communications and networking, Tata McGraw-hill publishing co. Ltd., New Delhi, 1998, 4th edition.
2.	Tanenbaum A. S., computer networks, 3rd edition prentice-hall of India Pvt. Ltd., New Delhi, 1997.
3	Stallings W., Data and Computer Communications, 3rd edition, Macmillan Pub. Company, New York, 1991.

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BCA (Bachelor of Computer Application)
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Course Code	**US06CBCA54**	Title of the Course	**Praticals**
Total Credits of the Course	2	Hours per Week	4

Course Objectives:	1. To study the concepts of web programming using PHP.NET. 2. To learn the Python Programming concepts.

Course Content		
	Description	Weightage (%)
	Part-1 : Practical based on US06CBCA51	50
	Part-2 : Practical based on US06CBCA52	50

Teaching-Learning Methodology	Hands on training through required ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	30%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	-
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	gain the knowledge of PHP Programming.
2.	gain the knowledge of Python Programming

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BCA (Bachelor of Computer Application)
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Course Code	**US06CBCA55**	Title of the Course	**Project – II**
Total Credits of the Course	2	Hours per Week	4

Course Objectives:	1. To enable the students to apply the knowledge of software project development activates.

Course Content		
Unit	Description	Weightage (%)
1.	Project development	100%

Teaching-Learning Methodology	Hands on Training and Analysis of Software Project Development.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	30%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	-
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Gain the knowledge of software project development activates.

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BCA (Bachelor of Computer Application)
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Course Code	**US06DBCA56**	Title of the Course	**Current Trends In IT**
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	1. To acquire knowledge about recent trends in Information Technology. 2. To study the basic concepts related to data analytics, machine learning, search engine optimization, Internet of Things (IoT) and cloud computing

Course Content		
Unit	Description	Weightage (%)
1.	**Data Analytics** – Data Warehouse – Data Mining – Business Intelligence – Data Analytics	25
2.	**Artificial Intelligence** – Introduction to AI – AI and Related Fields – Expert Systems – Introduction to Fuzzy Logic – Applications of AI	25
3.	**Search Engine Optimization** – Internet Basics – Internet Marketing – Search Engines Basics – Search Engine Algorithm - Vector Space Model – Using Search Engine – Search Engine Optimization	25
4.	**IoT And Cloud Computing** – Introduction to Internet of Things – Introduction to Cloud computing & Evolution of Cloud Computing – Applications of Cloud Computing – Benefits –Limitations of Cloud Computing – Cloud Services – Cloud Computing hardware and infrastructure	25

Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching and online /ICT-based teaching practices.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to gain	
1.	Knowledge about recent trends in Information Technology.
2.	Understanding of the basic concepts related to data analytics, machine learning, search engine optimization, Internet of Things (IoT) and cloud computing.

Suggested References:	
Sr. No.	References
1.	Data Mining – Concepts and Techniques - Jiawei Han & Micheline Kamber, Morgan Kaufmann Publishers, Elsevier,2nd Edition, 2006.
2.	Introduction to Data Mining – Pang-Ning Tan, Michael Steinbach and Vipin Kumar, Pearson education.
3	Artificial Intelligence -By Elaine Rich And Kevin Knight (2nd Edition) Tata Mcgraw- Hill
4	Artificial Intelligence: A Modern Approach, Stuart Russel, Peter Norvig, PHI
5	The Art of SEO: Mastering Search Engine Optimization by Eric Enge, Stephan

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Course Code	**US06DBCA57**	Title of the Course	**Mobile Applications Development**
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	1. To learn fundamentals of the Android Technology and its applications. 2. To understand how to work with activities, fragments and intents. 3. To acquire basic knowledge about Android mobile application control, displaying pictures and Menus.

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction to Android** – Introduction to Android – Android Versions and its Features – Architecture of Android – Android Devices – Standard development environment for Android applications – Installing Android, Android Development Tools (ADT) – Creating Android Virtual Devices (AVDs) – Creating Hello World and running application on Emulator	25
2.	**Activities, Fragments and Intents** – Understanding Activities – Life Cycle of an Android Activity Applying Styles and Themes to an Activity Hiding the Activity Title Displaying a Dialog Window, Progress Dialog – Linking Activities Using Intents – Fragments : Adding Fragments Dynamically, Lifecycle of a fragment, Intersections between fragments – Intents : Understanding the intent Objects, Use of Intent Filters.	25
3.	**Android Mobile Application Control** – Using Basic Views : TextView , Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, RadioGroup, ProgressBar, AutoCompleteTextView – Using Picker Views : TimePicker, DatePicker – Using List Views : ListView, Spinner	25
4.	**Displaying Picture & Menus** – Gallary and ImageView	25

	– ImageSwitcher, GridView – Using Menus : Options Menu, Context Menu, SubMenu – Additional Views : AnalogClock and DigitalClock – WebView	

Teaching-Learning Methodology	ICT-based learning approach.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Understanding of the fundamentals of Android Technology and its applications.
2.	Ability to understand how to work with activities, fragments and intents.
3.	Basic knowledge of Android mobile application control, displaying pictures and Menus
4.	Ability to develop applications using Android Technology.

Suggested References:	
Sr. No.	References
1.	Wei-Meng Lee,"Beginning Android Application Development", Wiley Publishing, Inc, Wrox Programmer to Programmer,2013.
2.	Lauren Darcey, Shane Conder,"AndroidWireless Application Development", 2nd Edition,2010.
3	Ian F. Darwin, "Android Cookbook", O'Reilly,2012.

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